COLLIDER DETECTOR AT
FERMILAB

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CDF Operations Department Self Assessment Plan

Submitted by:

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I. INTRODUCTION

The CDF Operations Department (COD) provides management support for and coordinates the operation and maintenance of the Collider Detector at Fermilab. Currently the COD has 12 FTE members organized into several groups. A department organization chart is shown in Appendix A. The COD occupies space in the CDF assembly building at B0. A COD general safety committee oversees safety issues. The general committee consists of six people from COD. Representatives from the Beams Division (BD) and the Particle Physics Division (PPD) may also be included. The committee meets prior to the beginning of each major run and then as needed. In addition, numerous PPD and BD safety committees review specific pieces of equipment or systems. A list of these committees is in Appendix B.

The remainder of this document is organized as follows:
Section II lists hazards present in CDF.
Section III reviews COD programs to deal with the hazards.
Section IV discusses assessment of the programs.

II. HAZARDS PRESENT IN CDF

The following hazards are present in at least some of the areas where COD personnel work:

1. Hazards associated with operating machinery, including large equipment (e.g. cranes, lift trucks), machine tools and power tools.
2. Electrical hazards.
3. Flammable Gases.
4. Working at large heights.
5. Compressed gas.
6. Radiation.
7. Hazards associated with the CDF superconducting magnet.
8. ODH
9. Lasers.
10. Sustained high noise levels.
11. Chemicals, toxic substances.

III. PROGRAMS FOR CONTROLLING HAZARDS

The CDF Operations Department programs for controlling the above listed hazards have three components: (1) In-depth review to minimize the hazards of any new system and make it as intrinsically safe as possible; (2) training; and (3) following documented operating and safety procedures. We list here the references for these procedures as well as information about training.

1. Mechanical Hazards: We follow procedures described in the Fermilab ES&H Manual. Operators are required to take Fermilab's crane safety and lift truck safety courses. In addition, some work requires training to permit the use of the B0 radio-controlled crane, lift trucks and safety harnesses. Specialists in the COD Team receive rigging safety and sling inspection training. The PPD/CDF Mechanical Review Committee for operational readiness reviews upgrades and new sub-systems.

2. Electrical hazards: We follow safety procedures as described in the Fermilab ES&H Manual. Upgrades and new sub-systems are reviewed by the PPD/CDF Electrical Review Committee for operational readiness.

3. Flammable Gases: We follow procedures described in the Fermilab ES&H Manual. The PPD/CDF Flammable Gas Safety Committee oversees the safety of our flammable gas systems.

4. Working at large heights: The CDF Operations Department provides training for people who work at heights within CDF. The use of safety harnesses is required unless the worker remains within the confines of rails surrounding the scissors lift platform.

5. Compressed gas: We follow procedures in the Fermilab ES&H Manual.

6. Radiation: The CDF Operations Department contains hazards from radioactive sources as well as hazards associated with radiation from the accelerator. The CDF Collision Hall is under the jurisdiction of the Beams Division while other CDF Operations Department areas are part of the Particle Physics Division. We follow procedures in the Fermilab Radiological Control Manual, and the Beams Division Safety Manual. All COD personnel receive GERT or RAD Worker I training as needed to perform their work. Radioactive waste training and radioactive source training are given if needed.

In addition, supervised access training and controlled access training is required of anyone making such accesses to the CDF Collision Hall. There is a COD/Beams procedure for "Search and Secure."

7. Hazards associated with the CDF superconducting magnet: The CDF superconducting solenoid has several hazards associated with it. These include hazards from having a cryogenic pressure vessel, electrical hazards; hazards associated with the cryogenic temperatures and hazards associated with the magnetic field itself. We follow the Fermilab ES&H Manual where applicable. In addition, the COD has procedures related to magnet operation reviewed by a PPD safety committee. The procedures are intended to insure safety.

8. Oxygen Deficiency Hazard (ODH): All of the COD areas are ODH-0, under normal operating conditions. Personnel who are required to access such areas in off-normal conditions are required to receive ODH training and to follow the ODH procedures in the Fermilab ES&H Manual.

9. Lasers: We have two nitrogen lasers in the CDF first floor counting room and they are locked out when not in use. They are only turned on to calibrate hadron calorimeter phototubes. Only personnel that have attended the Fermilab laser safety class may operate them. We follow procedures in the Fermilab ES&H Manual.

10. Sustained high noise levels: We follow procedures described in the Fermilab ES&H Manual. There are a couple of areas in the CDF building that are very noisy due to housing pumps and compressors. These areas are posted. Ear protection is required for those working in these areas. In addition, there are rooms that are noisy, mainly due to fans used to cool electronics. Ear protection is available for people working in these rooms. Noisy fans are also present in the collision hall. These fans are turned off as part of the access procedure before people enter the collision hall.

11. Chemicals, toxic substances: Our department does not use large quantities of hazardous or toxic chemicals although parts of the silicon vertex detector and the beam pipe are made of beryllium. All hazardous substances are used in accordance with procedures in the Fermilab ES&H Manual. An inventory is done annually by Particle Physics Division safety personnel to determine the types of chemicals and the quantities used. COD also has a designated accumulation station for the accumulation of used chemicals.

IV. ASSESSMENT ACTIVITIES

The CDF Operations Department (COD) Heads or designee is responsible for the following activities quarterly:

1. Review crane and sling inspection reports. (John Voirin)

2. Review personnel lift inspection reports. (Craig Olson)

3. Interview anyone injured during a COD activity.

4. Review entries in the ESHTRK database.
(www esh.fnal.gov/owa_user/owa/ESHTRK_RPT.html)

5. Review calibration dates of personal dosimeters, oxygen monitors and dual function gas monitors, and test emergency lights.

6. Review calibration records of the parts per million (PPM) early smoke detection system, maintenance equipment and hazardous atmosphere system.

The COD Heads or designee will be responsible for the following activities bi-annually or quarterly if findings warrant the need:

1. Perform OSHA-type walk-throughs of all buildings under COD control. All findings are written and dated. Findings are entered in the ES&H database.

The COD Heads or designee will be responsible for the following activities annually:

1. Review records of training received by COD members.

2. Assess training of COD and Collaboration members. This is to insure that all personnel are receiving all training relevant to their jobs.

3. Review waste disposal procedures.

4. Review emergency plans and drill records.

5. Review COD Self-Assessment Plan (this document).

6. Review COD Waste Minimization and Environmental Protection Program.

7. Review COD SQIP (CDF Operations ES&H/QA Management plan).

The COD Heads or designee will be responsible for the following activities annually and before each Collider run starts:

1. Review CDF Operations Guidelines as it relates to ES&H,
   (a) Review COD documented safety procedures.
   (b) Review work procedures and their documentation.

2. Review the COD SAD for accuracy.

APPENDIX B

COD Internal Safety Committees

COD Internal Safety Committee

Keith Schuh	CDF Proj.	Chairman
John Elias	CMS Proj.	
Dee Hahn	CDF Proj.	
Rob Roser	CDF Proj.	
Rich Stanek	CDF Proj.	
Steve Hahn	CDF Proj.	
Harry Carter	EET- CDF	
Al Goshaw	CDF Proj.	
Barry Fritz	Beams. Div.	
Martha Heflin	PPD ES&H	
Paul Alcorn	Beams/OD.	

PPD/CDF Grounding and Shielding Review Committee

John Elias	Chair
Bob DeMaat	
Gary Drake	
C. Nelson	
Stan Orr	
Keith Schuh	
A.Tollestrup	
Craig Drennan	

PPD/CDF Printed Circuit Board Review Committee

Bob DeMatt	Chairman
Robert Downing	
John Elias	
Jim Patrick	
Keith Schuh	

PPD/CDF Cable review Committee

John Elias	Chairman
Dervin Allen	
Keith Schuh	
Rob Roser	
Peter Wilson	
Robert DeMatt	
Stan Orr	

PPD ORC Review Committee Members

PPD/CDF Operational Readiness Safety Committee Coordinator

Winslow Baker

PPD/CDF Cryo Safety Subcommittee

Joel Fuerst	Chairman
Terry Anderson	
T. J. Sarlina	

PPD/CDF Flammable Gas Safety & Fire Subcommittee

Jim Priest	Chairman

PPD/CDF Electrical Review Subcommittee (for low voltage high current)

Paul Czarapata	Chair
Leon Beverly	
Craig Drennen	
Stan Orr	

PPD/CDF Electrical Power Supply Safety Review Subcommittee

Dan Wolff	Chair
George Krafczyk	
Phil Martin	
Stan Orr	

PPD/CDF Mechanical Safety Subcommittee

Fritz Lange	Chair
Joe Howell	
Ang Lee	
Russ Rucinski	

PPD/CDF Radiation Safety Subcommittee

Kathy Graden	Chair
Martha Heflin	PPD Senior Safety Officer for Assembly Hall (Phone 3857, page 0815)
Mike Gerardi	BD Radiation Safety Officer for Collision Hall (phone 4041)

PPD/CDF Toxic Materials Safety Subcommittee

Martha Heflin Chair